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Emerging Trend of Being Chipped in the Headbrain Implant Using Biometric Verimed - Positive ID

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Abstract— In this paper, We investigate about the implantable microchip which seem to be coming fast and furious these days..Until now, the most widely used forms of biometric identification have been fingerprints, facial recognition and voice recognition, all of which can be faked but the brain-wave pattern cannot be faked. We know that the brain-wave pattern of every individual is unique and that the electroencephalogram (EEG) can be used for biometric identification This is the first time this type of biometrics has been used for identification, and it solves most of the problems that the other biometric systems .chip -based biometry is an emerging research topic which will fullfill the current need ,which is focusing mainly on person identification and person authentication.Hence the paper is aiming at enhancing both security and safety across a wide spectrum of applications and advanced chip that can be implanted into human body by 2020.Also this paper deals with the concept of “Fingerprints And Faces Can Be Faked, But Not implantable verchips”

Keywords— Brain wave pattern based passport, verichip, biometric chip implant.

I. INTRODUCTION

Biometrics is an automated process that verifies an Individual's identity based on his/her physical characteristics. Examples of biometric technology include facial recognition, fingerprints,iris and brain wave patterns.[1]The recent biometric technology is brain wave pattern recognition.In which the Sensors able to identify individuals' brain patterns and heart rhythms could become part of security systems which also use more traditional forms of biometric recognition.The advantage of brainwave signals is that they vary from person to person, even when they think alike. Everyone's brainwave signal is a bit different even when they think about the same thing.[2] They are unique and cannot be faked.Hence now it can used for person authentication and sperson identification.Person authentication aims to accept or to reject a person claiming an identity, i.e., comparing a biometric data to one template, while the goal of person identification is to match the biometric data against all the records in a database.Hence a more efficient method than brain wave recognition is thus provided by this Verichip or VeriMed

II. HEAD GEAR

Headgear scans brainwaves for security purposes..It requires prototype headgear which includes two electrodes to take the readings.. The recording of brainwaves is done in sound proof and shielded room.Amplifiers and analog to digital interface are required for recording brain waves. Active electrodes or preamplifiers could be incorporated into the EEG electrode or connected to the electrical conductor of the electrode locator.The main application is biometric passport.

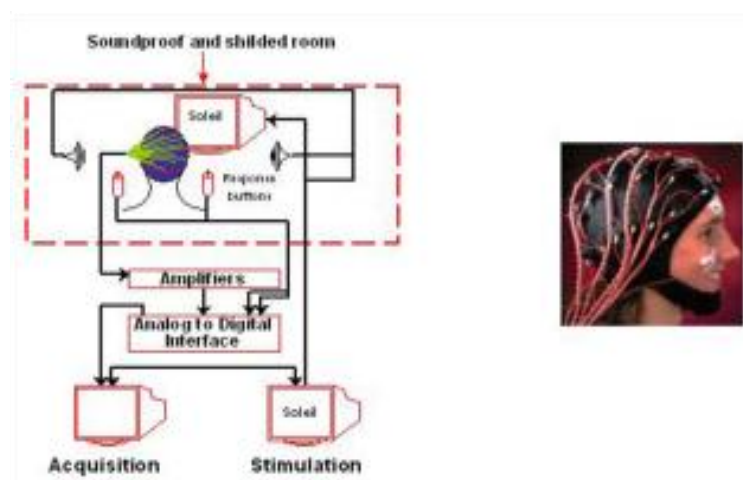


Fig 1 Structure of Headgear with Electrodes

III Biometric Passport

The biometric passport has a new design with additional security features, including a chip with the holder's brain wave pattern. The brainwave pattern can be stored on a microchip on the card or on a magnetic strip. The biometric passport is introduced because of the increasing threat of identity fraud makes it necessary to strengthen the security features in passports.

IV. Future of Biometrics

In the future, fixed biometric standards will be in place to guide vendors and developers in the areas of biometric application profiles, interfaces, and system performance. With such a young technology, biometric and identification technology has everything to gain with improved standards and accuracy.

V. VeriChip

This chip is not Science Fiction, it is real and plans to use it are progressing. IBM company plans to develop a chip that can quickly map out genetic code contained within the biological structures of organisms.

The system relies on an implant the size of a grain of rice, which VeriChip claims has an encrypted 16-digit identification number. With the VeriChip system, the patient's information is not embedded upon the chip, but rather is housed within VeriChip's online, secure database. When hospital personnel pass a scanner over the implanted RFID chip, the chip's identifier is displayed on the screen of an RFID reader. VeriChip was the only Food and Drug Administration (FDA)-approved human-implantable microchip.[3] It was marketed by PositiveID, a subsidiary of Applied Digital Solutions, and it received United States FDA approval in 2004. Its manufacture and marketing were discontinued in 2010. This is believed to be re-applied in 2025. Once scanned at the proper frequency, the VeriChip responds with a unique 16 digit number which could be then linked with information about the user held on a database for identity verification, medical records access and other uses. The insertion procedure is performed under local anesthetic in a physician's office. About twice the length of a dime, the device is typically implanted between the shoulder and elbow area of an individual's right arm.

Each person that has The Verichip will have a unique Subscriber Number, which provides instant access to something called the "Global Verichip Subscriber (GVS) Registry". This is accessed through a secure, password protected webserver.



Fig 2 Structure of Verichip

The biometrics will be a key instrument in our society. With the use of biometrics increasing from day to day and the need to stop fraud, it seems that the future shows hope. Well there be a central database to contain the digital templates from everyone eyes, finger, brainwave pattern or voices. The future of this technology is just starting to bloom. Many issues are arising from this technology and "PRIVACY" is the main concern. A small amount of Radio Frequency Energy passes from the scanner energizing the dormant Verichip, which then emits a radio frequency signal transmitting the individual's unique verification (VerichipID) number. U.S. consumers are ready to implant chips in their brain. According to a Computer World UK article, Intel believes that they will have Internet-connected brain implants in people's heads by the year 2020. By the year 2020, you won't need a keyboard and mouse to control your computer, say Intel researchers. Instead, users will open documents and surf the web using nothing more than their brain waves. Scientists at Intel's research lab in Pittsburgh are working to find ways to read and harness human brain waves so they can be used to operate computers, television sets and cell phones.



Fig 3 Implantation of Verimed

VI. Scanning Process

The Verichip is invisible, it's also clear how healthcare workers would know which unconscious patients to scan. Company officials say if the chip's use becomes routine, scanning people's arms for hidden chips would become second nature at hospitals. Ultimately, the company hopes patients who suffer from ailments such as diabetes and Alzheimer's disease or who undergo complex treatments, like chemotherapy, would have chips implanted. With the pinch of a syringe, the microchip is inserted under the skin in a procedure that takes less than 20 minutes and leaves no stitches. Intel believes that they will have Internet-connected brain implants in people's heads by the year 2020. By using the power of thought itself humans could be able to switch on/off lights, control their smart phones without even pulling out from their pockets.



Fig 4 Headbrain implant of verichip and Indication of the barcodes

The implant measures about 14mm and comprises five sensors, a coil for wireless power as well as a miniaturized electronics for radio communication. Sensors on the chip are covered with an enzyme that reacts with chemicals in the body to measure them. Information is then sent using Bluetooth to a wearer's mobile phone, where it is sent to doctors. The chip can detect up to five proteins and organic acids simultaneously, and then transmit the results directly to a doctor's computer. The implant is only a few cubic millimeters in volume but includes five sensors, a radio transmitter and a power delivery system. Outside the body, a battery patch provides 1/10 watt of power, through the patient's skin – so there is no need to operate every time the battery needs changing.



Fig 5 Verimed with Tuning Capacitor

VII. The Verichip Detect Illness Before the Implanted Person Even Starts Feeling Sick

Applications included medical monitoring; enabling a doctor to remotely access a "wearer's" vital signs and analyze them, as well as detect potential problems before he was even aware of symptoms.

HALO product was used to successfully save an infant from wrongly being taken from a maternity ward. The system shut down elevators and the infant was returned safely. The chip's serial number pulls up the patients' blood type and other medical information. With the pinch of a syringe, the microchip is inserted under the skin in a procedure that takes less than 20 minutes and leaves no stitches. Silently and invisibly, the dormant chip stores a code — similar to the identifying bar code on products sold in retail stores — that releases patient-specific information when a scanner passes over the chip. At the doctor's office those codes stamped onto chips, once scanned, would reveal such information as a patient's allergies and prior treatments. Information such as allergies, blood type, information medical workers would need to ensure they could safely do their jobs on a patient will become familiar.

VIII. Conclusion

In the future, we will increasingly see biometric systems for both identification and verification. In addition to the ICAO recommendations, a wide range of non-government applications exist such as energy supply facilities, nuclear power stations or emergency service control centres. Public demand for these applications may be the driving force behind further progress in biometrics research. India is still in the research process.

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